UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

SUBJECT:	CLEAN AIR ACT INSPECTION REPORT Chicago White Metal Casting, Inc., Bensenville, Illinois
FROM:	Tess Russell, Environmental Engineer AECAB (MN/OH)
THRU:	Brian Dickens, Section Supervisor AECAB (MN/OH)
TO:	File

BASIC INFORMATION

Facility Name: Chicago White Metal Casting, Inc.

Facility Location: 649 IL Route 83, Bensenville, Illinois 60106 (10 EJ indices >80th percentile, U.S. Census Block Group)

Date of Inspection: July 20, 2022

EPA Inspector(s):
1. Tess Russell, Environmental Engineer
2. Karina Kuc, Environmental Engineer

Other Attendees:
1. Eric Treiber, President and C.E.O, Chicago White Metal Castings
2. Jim Reitenbach, Production Manager, Chicago White Metal Castings
3. Luke Rohrbacher, Traffic and Materials Manager, Chicago White Metal Castings

Contact Email Address: etreiber@cwmtl.com

Purpose of Inspection: To determine applicability and/or compliance with Part 63, Subpart ZZZZZZ; observing the use of sulfur hexafluoride (SF_6) in magnesium die casting

Facility Type: Aluminum, magnesium, and zinc die casting

Regulations Central to Inspection: Part 63, Subpart ZZZZZZ: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries

Arrival Time: 8:15 AM
Departure Time: 9:55 AM

Inspection Type:
☒ Unannounced Inspection
☐ Announced Inspection

OPENING CONFERENCE

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☒ Provided Small Business Resource Information Sheet
☐ Small Business Resource Information Sheet not provided.
☒ Provided CBI warning to facility

The following information was obtained verbally from Eric Treiber, Jim Reitenbach, or Luke Rohrbacher unless otherwise noted.

Process Description: Chicago White Metal Casting, Inc. has produced high pressured die castings since opening in 1977. Aluminum (Al), zinc (Zn), and magnesium (Mg) arrive in ingot form as the raw materials. The ingots are loaded into one of 18-20 furnaces, melted, and the resulting molten metal is injected into molds. The facility does not make any molds but rather receives them from the customers. Molds are sprayed with "die release agents."

One aluminum melting furnace is run by natural gas with a capacity of approximately 4,000 pounds (lb) aluminum melted/hour (hr); there are several other aluminum holding furnaces. Two zinc furnaces that act as both melting and holding furnaces have capacities of 300-400 lb zinc melted/hr; one is electric, and one is natural gas. Six magnesium furnaces act as both melting and holding furnaces with capacities of 200 lb Mg melted/hr; all are electric and only three are active.

Staff Interview: According to facility representatives, the facility produces about 3 million lb aluminum/yr (1,500 tons per year [tpy] Al); 200,000 lb zinc/yr (100 tpy Zn); and 150,000 lb magnesium/yr (75 tpy Mg). The facility uses only clean materials, including raw materials in ingot form and recycled aluminum from the facility's own processes. Zinc and magnesium internal scraps do not get recycled back into the process, but rather are recycled through the companies that provided the original ingots.

Aluminum furnaces use a flux to help remove impurities by creating dross. Dross is removed once a week; it is sent to a processing plant to be reused or repurposed.

Magnesium die casting uses sulfur hexafluoride (SF_6) as a cover gas to prevent burning. SF_6 enters the facility in cylinders and is supplied to the magnesium furnaces in a continuous flow

process through piping. The last inspection conducted checking for SF_6 leaks was in 2004. The facility has not inspected for leaks since.

The facility has no air pollution controls, including no baghouses on their machining and CNC machining operations.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations: EPA observed the molds that are shipped to the facility as well as the clean charge ingots used as raw material. The use of unclean charge could trigger Part 63, Subpart RRR, to which the facility is not currently subject. EPA observed the aluminum department. Visible emissions were seen rising from the die casting machines to the windows at the top of the room (*see* Image 1).

EPA observed only one of the two zinc furnaces in operation. EPA observed the SF_6 mixing station, where SF_6 from the cylinders is mixed with predominately carbon dioxide to create the cover gas for the magnesium furnaces. Facility representatives estimated they use about one cylinder per month, or 150 lb SF_6/month.

EPA observed that the aluminum furnaces have partial covers, zinc furnaces had no covers, and magnesium furnaces had covers at all times except for when inputting new Mg ingots. The covers over the magnesium furnaces protect the layer of SF_6 cover gas.

EPA observed that die castings are the only type of castings manufactured at the facility. Die casting operations are excluded from Part 63, Subpart ZZZZZZ applicability.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

- ROSS permit and corresponding application
- Spec sheets for the metal alloys
- SDS for each die release agent, coolant, and flux
- Report from the last SF_6 inspection (if the last one cannot be found, provide the last one that can be found)
- If applicable, the most recent air-related industrial hygiene study
- The percentage of SF_6 in the cover gas
- Annual emissions tracking spreadsheet with production throughputs and emission factors for 2019, 2020, and 2021

DIGITAL SIGNATURES

Report Author: Russell, Tess Digitally signed by Russell, Tess Date: 2022.09.15 13:31:03 -05'00'

Section Supervisor: Brian Dickens Digitally signed by Brian Dickens Date: 2022.09.15 13:52:08 -05'00'

APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Image Log

Facility Name: Chicago White Metal Casting, Inc.
Facility Location: 649 IL Route 83, Bensenville, Illinois 60106
Date of Inspection: July 20, 2022

APPENDIX A: DIGITAL IMAGE LOG

1. **Inspector Name:** Karina Kuc	2. **Archival Record Location:** ERC

Image Number	File Name	Date and Time (Central time)	Description of Image
1	P7200032.JPG	2022:07:20 08:22:38*	Aluminum department

Note: time stamp on photo is one hour earlier actual time